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A Systematic Review of Behavioral Outcomes for Leadership Interventions Among Health Professionals

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ABSTRACT

Background: Healthcare requires effective leadership to improve patient outcomes, manage change, and achieve organizational goals.

Purpose: The purpose of this study was to evaluate interventions aimed at improving leadership behavior in health professionals.

Methods: A systematic literature review of key databases (PubMed, CINAHL, Embase, and Scopus) was performed in September 2018. Data were extracted and synthesized.

Results: Thirty-three articles from 31 studies met the inclusion criteria. Self-reported leadership behavior showed a significant postprogram improvement. Objective observations were more likely to show improved leadership behavior than subjective observations. Face-to-face delivery of leadership development was more effective than online delivery. Interventions incorporating the elements of personal development planning, self-directed learning, workplace-based learning, and reflection were more likely to develop leadership behavior.

Conclusions/Implications for Practice: Leadership interventions had a beneficial effect on the leadership behaviors of participants based on both subjective and objective changes in behavior. In addition to focusing on individual skill development, interventions that aim to develop leadership should consider the organizational, social, cultural, and political contexts in which behavioral change is expected. Workplace-based learning should be included in program development.

KEY WORDS:
health professionals, leadership, leadership interventions, program development, systematic review.

Introduction

Quality healthcare is dependent on effective organizational factors, including interdisciplinary teamwork, a supportive culture, and good leadership (Barr & Dowding, 2019; Marchionni & Ritchie, 2008; McAlearney, 2008). As the healthcare system has evolved to align business and medical imperatives (Murdock & Brammer, 2011), the tendency to separate leadership and administration from clinical care has given way to leadership development becoming a core approach in physician, nurse, and allied health training (Ackerman et al., 2019).

The development of leadership skills among healthcare professionals aims to improve performance, allow for succession planning, facilitate organizational change, and achieve organizational goals (Collins & Holton, 2004; Turner, 2019). Effective leadership grows an accountable culture that is aligned with these goals (Peters, 2019), which improves patient outcomes (Suhonen et al., 2019).

Research has shown the importance of developing leadership in health professionals, including specific clinical leadership skills (Cleary et al., 2005; Cutcliffe & Cleary, 2015; Daly et al., 2014). However, discussions of skills and capabilities in the literature often emphasize what should happen instead of evaluating successful strategies. Studying the comparative degrees of success of different leadership development programs allows future endeavors to benefit from previous experiences to better target strategies. For example, one study highlighted the importance of the context of the proposed change for successful leadership in complex healthcare environments (Kwamie et al., 2014). This study found that leadership change was not sufficiently institutionalized, directing future studies to consider context to enable a more reflexive organizational culture. Another study found that the development of leadership in physicians focused on individual skills rather than enhancing collaborative capacity (Frich et al., 2015).

Strategies to enhance leadership behavior have important effects on both public health workplaces and healthcare (Dellve et al., 2007; Jiménez et al., 2017). This systematic review seeks to evaluate the evidence of interventions aimed at improving leadership behavior in health professionals.

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Methods

Study Design and Search Methods

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (Liberati et al., 2009) were used in this study to systematically review studies concerning the effectiveness of leadership development/intervention programs in improving leadership behavior in health professionals. A literature search was conducted in September 2018 of several databases, including PubMed, CINAHL, Embase, and Scopus. No time restriction was applied to these database searches. Boolean connectors combined Medical Subject Headings and the following search terms: leadership*, health personnel, allied health personnel, nursing, physicians, program development, intervention*, and program evaluation.

For example, the search strategy for CINAHL was ([MH nurses OR TI nursing OR AB nursing OR MH Allied Health Personnel OR MH Occupational Therapists OR MH Social Workers OR MH Physical Therapists OR TI physiotherapist OR AB physiotherapist OR MH Physicians] AND [MH Leadership OR TI "transformational leadership" OR AB "transformational leadership"] AND [MH Program Development OR TI intervention* OR AB intervention* OR MH Program Evaluation]) NOT student* NOT undergraduate NOT baccalaureate NOT supervision NOT mentor*. Across the four databases, the search was modified for variations in syntax and Medical Subject Headings terms.

Eligibility Criteria

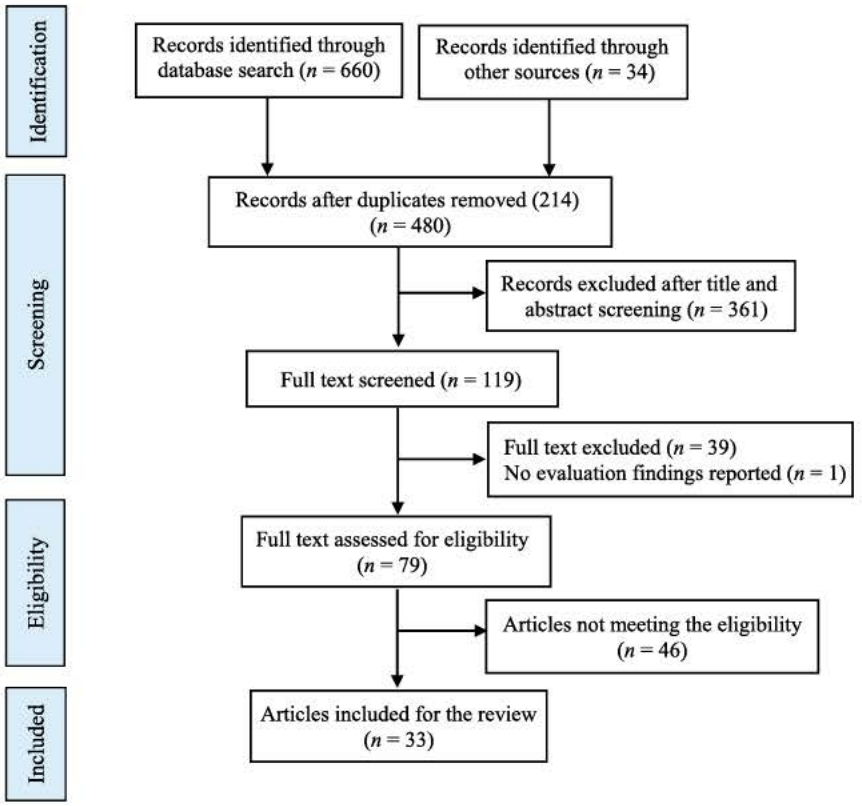
The eligibility for inclusion encompassed qualitative or quantitative peer-reviewed articles published in English evaluating leadership development programs/interventions on leadership behavior among health professionals across health sectors. All prospective interventions that were designed to develop or enhance leadership were included. Kirkpatrick's evaluation model (Kirkpatrick & Kirkpatrick, 2009), which describes four evaluation levels of reaction (Level 1), knowledge (Level 2), behavioral change (Level 3), and system results (Level 4), was used to classify the outcome of leadership interventions. This review only included studies reporting behavior change (Level 3). Studies without interventions; studies not primarily addressing health professionals; studies on students, supervision, or mentorship; theoretical articles; commentaries; editorials; and review articles were excluded.

Search Outcomes

The search identified 660 articles, with an additional 34 articles identified in the reference lists of the identified studies and through hand searching. After the removal of 214 duplicates, the titles and abstracts of 480 articles were screened, resulting in the removal of an additional 361 articles. The remaining 119 articles were subject to full text review, resulting in the removal of an additional 39 articles. After removing one article (Blaney, 2012) because of the lack of reported findings, the

Figure 1

Flow Diagram of Studies Identified, Screened, Assessed for Eligibility, and Included



remaining 79 articles were assessed for eligibility, of which 33 (from 31 studies) met the inclusion criteria (see Figure 1).

Data Extraction and Synthesis

A data extraction sheet was developed in consensus with all of the authors and finalized using an iterative process. Two of the authors extracted the information from the included articles in five domains: (a) study characteristics, namely, author, publication year, country, objective(s), and study design; (b) study settings and participants; (c) intervention characteristics, namely, duration, content, and training methods; (d) behavioral outcome and assessment, namely, assessment measures and follow-up; and (e) significant findings (see Table 1). The other authors assessed the data, with discrepancies resolved by consensus. In line with the previous reviews of leadership interventions (Collins & Holton, 2004; Frich et al., 2015), the reported behavioral outcomes were differentiated into subjective and objective assessments of the behaviors. The results of this review are presented in narrative form.

Results

Characteristics of the Studies

The characteristics of the included studies are presented in Table 1. Of the 31 included studies, 19 used quantitative methods, five used qualitative methods, and seven used mixed methods to measure the intervention outcomes. Seventeen of the studies used a pretest–posttest design, and the remaining 14 used only a posttest (with or without follow-up) design. Only five of the included studies used a control group(s) for comparison. Ten of the studies were conducted in the United States; seven, in Canada; six, in the United Kingdom; two each, in Australia and Ireland; and three, in other European countries. One study was conducted in both the United States and Canada. The included studies were published between 2002 and 2016.

Study Settings and Participants

Most of the included studies evaluated different types of leadership development programs in clinical settings. Study participants included nurses in 12 studies, physicians in six studies, healthcare educators in three studies, and mixed-group participants (including physicians, nurses, clinical managers, ward managers, allied health professionals, and administrators) in 10 studies. The number of trainees who participated in the interventions ranged from eight to 48 in qualitative and seven to 550 in quantitative and mixed-methods studies. Female participants outnumbered male participants in many of the studies. Some studies did not exclusively report the number of participants who provided the evaluation data used in analyses.

In addition to the participants, key stakeholder informants were used in nine studies to provide information using observer evaluations of leadership behavior (objective behavior) of the participants (Study nos. 3, 4, 7, 10, 18, 23, 26, 30, 33). These informants included participants' immediate supervisors, peers and colleagues, dyad partners, and patients.

Intervention Characteristics

The interventions differed in terms of duration, content, and mode of delivery. The duration of the interventions ranged from a half-day workshop (Gilfoyle et al., 2007) to a 4-year program that was integrated into standard clinical training (Agius et al., 2015). Eleven studies reported on interventions lasting for 12 months or longer, whereas five studies had intervention lasting for less than 1 week. Five studies (Study nos. 5, 10, 17, 19, 32) did not specify the duration of the intervention. The intervention dose also varied across the studies, and the time devoted to the intervention was difficult to ascertain in many studies.

Despite the diversity across interventions in terms of training content, most interventions addressed leadership, group dynamics, teamwork, communication, personal development, change management, conflict resolution, time management, and supervision skills. Some studies also included clinical skills such as perioperative issues in geriatric care (delirium, functional assessment, polypharmacy, and discharge planning; Levine et al., 2008) and pediatric resuscitation (resuscitation skills and avoidance of fixation errors; Gilfoyle et al., 2007).

All of the included studies used face-to-face training, with the exception of Brown et al. (2003), which used an online leadership course. Maddalena and Fleet (2015) employed both face-to-face and online modules. The interventions used different types of teaching/learning methods, among which group-based workshops were the most common, with many studies using more than one type of training method. Other methods included lectures, coaching, 360° feedback, mentorship, learning reflection, group discussion, team activities, plenary sessions, role play, presentation, and simulation exercises. Some of the studies also included work-based action learning in which participants developed their own action plan and implemented this plan over the intervention period. Five studies (Study nos. 4, 9, 10, 19, 32) did not clearly specify the mode of training delivery.

Outcome Measures

This review only included studies reporting the behavioral outcomes of the leadership interventions. Most of the included studies (n = 21) reported only subjective behavioral outcomes, consisting of intervention-related, self-reported alterations in behavior. Gilfoyle et al. (2007) reported objective behavior in which participants were asked to participate in a mock leadership scenario. The remaining nine studies reported on both subjective and objective behaviors. Nine studies used standard scales to measure leadership behavior, of which four used the Leadership Practices Inventory (LPI; Table 2).

Eight studies (Study nos. 3, 5, 10, 11, 13, 14, 22, 28) used only one measurement during the postintervention

Table 1
Study Characteristics, Leadership Intervention, and Behavioral Outcomes

No.	Author (Year) / Country	Objective	Study Setting and Participant	Study Design	Intervention Duration
1.	Agius et al. (2015) / United Kingdom	To determine the impact of Medical Leadership Programme (MLP) at an individual and service level for the delivery of patient care.	Eight physicians participated in MLP	Qualitative, pre, mid, and post program	Four-year program integrated into the clinical training.
2.	Bergman et al. (2009) / Sweden	To assess the impact of two different leadership programs (long-term and 1-week) on healthcare managers' attitudes toward and the views on leadership.	53 (45 female) managers, mostly nurses (34 in long-term support group and 19 in 1-week) 39 responded both before and after questionnaires and 30 participated in focus group interviews	Mixed methods, before and 6 months after program	Long-term (3-hour sessions conducted 9 times in a year, for an average of 17 months) versus 1 week.
3.	Boomer & McCormack (2010) / Northern Ireland	To evaluate a 3-year practice development program for clinical nurse leaders.	48 clinical leaders from 16 units Data collected from key stakeholders, which included patients, facilitators, nursing and service managers, and nursing staff	Qualitative, postprogram	3 years
4.	Boyle & Kochinda (2004)/ United States	To test an intervention to enhance collaborative communication among nurse and physician leaders in two intensive care units (ICUs).	10 (eight female) clinical leaders (seven nurses and three physicians) Mean age: 39.8 years Average years in their respective leadership positions: 4.7 Participants also included the unit staff of the trainees	Quantitative, single-arm pre–post and 6 months of follow-up	8 months (six modules of 23.5 hours in total).

Intervention Content	Teaching Method	Behavioral Outcome and Assessment	Significant Finding
Leadership, health and public policy, organizational development, governance, future challenges of health, and public leadership	Integrated training model comprising academic and vocational components	Subjective Semistructured qualitative interviews and reviews of achievement	The participants reported evidence on showing personal qualities, working with others, managing services, improving services, and setting direction.
Group dynamics, teamwork, communication, leadership, conflict management	1-week course, reflection, and long-term support group	Subjective Questionnaire and focus groups	Both leadership programs strengthened the managers in their leadership roles. The long-term support groups helped the managers to structure and cope with everyday leadership situations in their occupational environment. The 1-week course was good for inexperienced managers and the long-term support groups for more experienced managers.
Leadership development	Work-based action learning, workshops The team met monthly to solve problems, plan activities, and analyze and synthesize data	Subjective and objective Qualitative interview, observations	Process outcomes showing growth as leaders contributing to cultural shifts (becoming more reflexive; becoming proactive; valuing teamwork and becoming more accessible, reachable, and approachable; and becoming a facilitator). Stakeholders showed practice change including teamwork among staff, friendliness and professionalism, better communication with staff and patients, efficient management of waiting lists, learning culture, good working relationships, reflective practice, role modeling behaviors, managing performance, and challenging poor practice.
Collaborative communication, leadership, coordination, problem solving, conflict management, team culture	Not clear	Subjective and objective Investigator-developed Collaboration Skills Simulation Vignette test and a modified ICU Nurse–Physician Questionnaire	Postintervention mean score on the Collaborative Communication Simulation Vignette (possible score range: 0–100) increased from 56.7 in pretest to 75.3 in posttest ($p = .021$). During follow-up, participants reported a significant improvement in self-perception of leadership characteristics exhibited, and satisfaction with leadership, and communication skills ($p < .05$). The unit staff reported improved collaborative communication, problem solving, and nursing leadership.

(continues)

Table 1
Study Characteristics, Leadership Intervention, and Behavioral Outcomes, Continued

No.	Author (Year) / Country	Objective	Study Setting and Participant	Study Design	Intervention Duration
5.	Brown et al. (2003)/ United States	To describe the results of an evaluative research project that examined outcomes of a web-based nursing leadership course.	33 registered nurse students	Quantitative, single-arm postprogram	Not clear
6.	Castillo & James (2013)/ United Kingdom	No specific objective(s) stated.	120 participants (therapists, ward managers, senior nurses, midwives, school nurses, and other managers) participated in improving the Frontline Leaders program (eight cohorts). Not clear how many were involved in the program evaluation	Quantitative, posttest and 1-year follow-up	Around 6 days of contact spread over 8 months.
7. 8.	Cunningham & Kitson (2000a) Cunningham & Kitson (2000b)/ United Kingdom	To test whether the Clinical Nurse Leadership program improved the clinical leadership capability of participants.	28 (22 female) participants (four senior nurses and 24 ward sisters) in four acute hospital trusts Questionnaires were also completed by the colleagues on the wards of the participants	Quantitative, single-arm, pre–post design	18 months

Intervention Content	Teaching Method	Behavioral Outcome and Assessment	Significant Finding
Not clear	Online nursing leadership course	Subjective Researcher-developed questionnaire	More than 71% participants reported the course caused them to reevaluate their communication patterns, develop lifelong learning skills, and improve their critical thinking. More than 65% indicated the course led them to reevaluate personal leadership style and improve ability to offer concrete reasons for opinions. Participants reported confidently applying change strategies, conflict resolution, case management, ethical decision management, and different leadership and management styles.
Leadership styles, coaching and feedback skills, delivering and sustaining change	Lecture, practice-based project, coaching, 360° feedback	Subjective 360° feedback tool	After program, 360° feedback revealed improvements in behavior of the participants especially in acting in feedback, asking people's points of view, and effectively providing positive feedback. 70% of the participants reported impact of the training on their leadership behavior such as encouraging nurses to solve problems and involving colleagues during difficult situations. Nursing managers reported using their new skills to role model and encourage critical thinking.
Personal development, 360° feedback, undertaking observations of care and patient narratives	Personal development plan, action learning, workshop, storytelling, mentorship	Subjective and objective Multifactor Leadership Questionnaire (MLQ)	Participants self-assessed significant changes for the inspiration ($p = .024$), active management by exception ($p < .001$), effectiveness ($p = .033$), and satisfaction ($p < .001$) dimensions of MLQ. Participants' colleague assessed significant improvements for the attributed charisma ($p = .043$), inspiration ($p = .049$), idealized contribution ($p = .039$), extra effort ($p = .002$), and effectiveness ($p = .042$) dimensions of MLQ.

(continues)

Table 1
Study Characteristics, Leadership Intervention, and Behavioral Outcomes, Continued

No.	Author (Year) / Country	Objective	Study Setting and Participant	Study Design	Intervention Duration
9.	Dannels et al. (2008)/ United States and Canada	To determine whether the participants of Executive Leadership in Academic Medicine (ELAM) program aspire leadership, show mastery of leadership competencies, and attain leadership position.	78 female (professor and assistant professor) of the ELAM program compared with 468 matched controls from the Association of American Medical Colleges (AAMC) Faculty Roster and 26 women who had applied to the program but had not been accepted	Quantitative, pre and 4–5 years of follow-up, two control groups	1 year
10.	Debono et al. (2016)/ Australia	To examine the effects of "Take the Lead" program on job performance, nursing leadership, and patient experience.	30 (27 female) nursing unit managers (NUMs) and 30 (26 female) supervisors of the participants	Mixed method, postprogram	Not specified
11.	Duffield (2005)/ Australia	To describe a master class for NUMs.	18 NUMs from four hospitals, 14 evaluated	Quantitative, 6 months after program	Monthly classes for 1 year.
12.	Fennimore & Wolf (2011)/ United States	To describe an innovative approach to the development of successful nursing leaders across an integrated healthcare system.	25 nurse managers participated in the Leadership Development pilot program for Nursing Middle Managers program, 21 completed follow-ups	Mixed method, pre and 6 months of follow-up	Five 8-hour sessions conducted every alternative week for 2 months.

Intervention Content	Teaching Method	Behavioral Outcome and Assessment	Significant Finding
Executive leadership	Not clear	Subjective Researcher-developed questionnaire	Program participants reported significant improvements on 12 of 16 leadership indicators (seven leadership competencies, three administrative leadership attainments, and two leadership aspirations) compared with control groups. During follow-up, a significantly higher number of ELAM participants reported attaining higher administrative positions (63.5%) compared with the AAMC (22.5%) and nonparticipant (37%) groups. No difference in results related to academic level.
Communication, lean thinking, financial management, rostering, and leadership	Not specified	Subjective and objective Semistructured telephone interviews, researcher-developed questionnaire	Program participants exhibited improvements in job performance and leadership skills. 70% of participants and 83% of supervisors reported positive changes in job performance since their participation in the program. Most participants and supervisors reported a positive impact on leadership skills and behaviors.
Motivating staff, time management, enhancing staff performance, changing unit culture, coping with change, team building, applying leadership in practice, communication	Coaching, experiential learning, "trust walk," sharing narrations	Subjective A 26-item Likert scale evaluation	All the participants "strongly agreed" (on a 5-point Likert scale) that the program had allowed them to express opinions, stretched their mind, and encouraged networking and learning from each other. Participants reported changes in leadership behavior.
Understanding the leader within, art of nursing management, financial management, human resource issues	Assigned leadership readings, lecture, discussion, self-assessment tools, homework assignments	Subjective Modified Nurse Manager Inventory Tool and qualitative feedback	Participants reported an average raw score improvement of 0.68 for 15 different competency areas 6 months after the intervention, with an average increase of 26.7% in the domain of "the science of managing people," 20.9% in "the art of leading people," and 27.0% in "creating the leader within." Qualitative data depicted improvement in behavioral competencies in use of a reflection as a leadership behavior, foundational thinking, human resource management, and shared decision making.

(continues)

Table 1
Study Characteristics, Leadership Intervention, and Behavioral Outcomes, Continued

No.	Author (Year) / Country	Objective	Study Setting and Participant	Study Design	Intervention Duration
13.	Ford et al. (2008)/ Ireland	To describe the benefits of the Clinical Leadership program for participants, commissioners, and service users.	16 Directors of Nursing had an equivalent level of responsibility	Qualitative, postprogram	10 months
14.	Gagliano et al. (2010)/ United States	The development, implementation, and experience of the Physician Leadership Development Program.	52 midcareer physicians having leadership responsibilities in clinical practices from 12 departments at an academic medical center	Mixed method, postprogram each session and at the end of the program	2-year program, monthly 4-hour sessions, and three full-day intensive sessions.
15.	Gifford et al. (2011)/ Canada	To describe the planning and evaluation of a leadership intervention to facilitate nurses' use of guideline recommendations for diabetic foot ulcers in home healthcare.	13 nurse managers and clinical leaders	Mixed method, posttest and 3 months of follow-up	3 months: one workshop (6 hours) and three follow-up teleconferences.
16.	Gilfoyle et al. (2007)/ Canada	To evaluate learning outcomes of a leadership intervention to determine whether residents acquire and retain team leadership skills in pediatric advanced resuscitation.	15 pediatric residents	Quantitative, posttest and 6 months of follow-up with wait-list control	Half-day workshop.
17.	Graham & Jack (2008)/ United Kingdom	To evaluate how an executive nursing team developed their leadership characteristics using a professional development program.	Seven senior nurses in an acute hospital trust	Quantitative, pre and post	Not specified

Intervention Content	Teaching Method	Behavioral Outcome and Assessment	Significant Finding
Personal development, service improvement	Workshop, coaching, storytelling, mentorship, action learning, learning reflection	Subjective Qualitative feedback	Participants perceived increased self-belief resulting in improved ability to hold team members to account for their actions, lead improvement initiatives, and foster greater collaborative relationships through increased rapport.
Organizational leadership, financial management, management strategy, applied skills and tools	Lectures, case-based discussion	Subjective Researcher-developed questionnaire and group discussion	79% participants reported that they had altered their approach to specific projects or problems. Participants also reported taking larger challenges in their departments.
Leadership and planned change theory, barriers and facilitators to guideline utilization, chart audit, findings of nursing care	Identification of clinical indicators and development of action plan, reflection on leadership, discussion on leadership strategies	Subjective Researcher-developed questionnaire and interviews	During postprogram (3 months of follow-up), participants felt that leadership behaviors were influenced by the intervention. Participants reported changed leadership performance including increased engagement with staff and more, clear implementation goals. All perceived the intervention to have influenced them as leaders of guideline implementation.
Teamwork, communication, technical skills on resuscitation, avoidance of fixation errors	Group discussion, plenary session, simulation, workshop	Objective Researcher-developed questionnaire	Scores on mock leadership scenario for assigning roles, limitations of team, communication, and team atmosphere among participants were significantly higher compared with baseline and control groups.
Future perspectives of healthcare and nursing, leadership, personal development	Workshops: presentation of seminar papers and an action learning group format	Subjective Researcher-developed questionnaire	Quantitative results showed no significant change (pre–post) in behavioral aspects of leadership. Participants cited developing leadership skills during postintervention, including enabling others to make decisions, reviewing staff potential, risk taking, inspiring others, and enhancing creative thinking. Participants described better able to be action focused, democratic, and participative.

(continues)

Table 1
Study Characteristics, Leadership Intervention, and Behavioral Outcomes, Continued

No.	Author (Year) / Country	Objective	Study Setting and Participant	Study Design	Intervention Duration
18.	Krugman & Smith (2003)/ United States	To describe the development and evaluation of a permanent charge nurse role and report outcomes of this leadership model over 4 years.	104 permanent charge nurses	Quantitative, single-arm pre, post, and yearly follow-up for 4 years	2-day training workshop and follow-up at Year 2 and Year 3 based on the gaps identified.
19.	Lee et al. (2010)/ Canada	To examine the effects of a Leadership Development Initiative on the emotional health and well-being of healthcare managers.	86 (72 female) completed both presurvey and postsurvey. 13 senior leaders/directors, 20 managers, 23 operational leaders, 16 in collaborative roles, and 14 junior supervisors	Mixed method, pre and post	Not specified
20.	Leeson & Millar (2013)/ United Kingdom	To describe a short leadership program for nurse and allied health professional leaders.	Number of trainees not specified; 17/66 returned the evaluation questionnaire	Quantitative, postprogram and follow-up	2-day training workshop and follow-up at 6 weeks.
21.	Levine et al. (2008)/ United States	To describe a 2-day educational intervention for chief residents from multiple disciplines combining training in leadership and teaching in geriatric care.	47 trainees (44 chief residents) participated in three cohorts over 3 years	Mixed method, pre and post with two follow-ups at 6 and 12 months	2 days
22.	Macphee et al. (2012)/ Canada	To describe nurse leaders' perspectives of the outcomes of a formal leadership development program.	27 front-line and midlevel nurse leaders participating in the Nursing Leadership Institute program	Qualitative, postprogram	1 year

Intervention Content	Teaching Method	Behavioral Outcome and Assessment	Significant Finding
Role of the charge nurse, leadership theory, communication, delegation, conflict resolution, stress management	Workshop	Subjective and objective Leadership Practices Inventory (LPI)	Significant increase in three of the five leadership practices: challenging the process; inspiring a shared vision; and modeling the way. Observers reported a significant decrease in modeling the way, enabling others to act, and encouraging the heart. Participants rated themselves higher than observers on most of the five subscales.
Not specified	Not specified	Subjective LPI Qualitative postprogram: three focus groups and 13 individual interviews	Aspects of self-assessed leadership did not show a significant improvement except in the "inspiring a shared vision" dimension of LPI ($p < .01$). Participants expressed reluctance in changing leadership behavior when faced with continual barriers.
7 Habits for Healthcare program aims to enable participants to take initiative and responsibility, focus on priorities, practice continuous improvement, and decrease stress.	Facilitated workshop, reflection, discussion, group activities	Subjective Researcher-developed questionnaire	Delegate improvements included prioritizing, planning, and assertiveness; taking responsibility for actions; professional workplace relationships; and teamwork.
Management of perioperative issues including delirium, functional assessment, polypharmacy, and discharge planning	Fictional case discussion, mini lectures, interactive seminars, and one-to-one mentoring	Subjective Researcher-developed questionnaire, group and individual interviews	During follow-up, participants reported improved care of older patients, better leadership and conflict resolution skills, better teaching, and more interdisciplinary collaboration. Participants believed that the training would inform their future work as physicians.
Leadership development, evidence-based empowerment	A 4-day workshop, mentoring, organizational supports to implement leadership projects and virtual networking	Subjective Telephone interviews	Nurse leaders reported increased self-confidence with respect to carrying out their roles and responsibilities, positive changes in their leadership styles, and perceptions of staff recognition of positive stylistic changes.

(continues)

Table 1
Study Characteristics, Leadership Intervention, and Behavioral Outcomes, Continued

No.	Author (Year) / Country	Objective	Study Setting and Participant	Study Design	Intervention Duration
23.	Maddalena & Fleet (2015)/ Canada	To document the process used to develop an innovative Physician Management and Leadership Program.	37 participants (35 physicians) and stakeholders	Quantitative, pre, post, and 6 months of follow-up	Seven modules each of 4–7 hours in classroom and three online modules Intervention duration not specified.
24.	Malling et al. (2009)/ Denmark	To evaluate the effect of a leadership course after a Multisource Feedback (MSF) procedure compared with MSF alone regarding the development of leadership skills over time.	87 consultants responsible for postgraduate education at clinical departments 42 intervention (20 analyzed) and 45 control (nine analyzed)	Quantitative, pre–post, controlled	6 months, a 7-day course (2- to 3-day residential modules and a follow-up day).
25.	Margolis et al. (2013)/ United States	To evaluate the effects of the Interdisciplinary Leadership Development Program (ILDP) on Maternal and Child Health (MCH) trainees.	208 MCH trainees divided into ILDP participants and controls	Quantitative, postprogram survey and interviews 1–8 years	A 3-day leadership intensive workshop.
26.	Martin et al. (2012)/ Switzerland	To evaluate the impact of the adapted Royal College of Nursing Clinical Leadership Programme on the development of leadership competencies of nurse leaders.	14 (nine female) nurse leaders from a university hospital Data were also collected from 403 supervisors and colleagues of the participants	Quantitative results reported from a mixed methods study Pre–post and 6 months of follow-up	147 contact hours in 18 days over a 12-month period, with a follow-up day 6 months later.

Intervention Content	Teaching Method	Behavioral Outcome and Assessment	Significant Finding
Leadership approach, strategic planning, managing competing priorities, change management, communications, patient safety, performance development	Team and individual problem-solving activities, role playing, online exercises	Subjective and objective The follow-up evaluation consisted data from stakeholders and peers/staff regarding impact of the program on participants' leadership skills and performance	During follow-up, participants reported planned changes in the workplace because of program participation, with > 95% feeling better prepared for their leadership responsibilities. Participants self-reported more effective communication, enhancement of teamwork, development of new policies and procedures, effective conflict resolution, altered approaches to various workplace issues, and increased awareness of potentially valuable partnerships. Stakeholders/observers also reported participants applying skills learned from the program in the workplace such as conflict resolution, problem solving, and quality care initiatives.
Pedagogical knowledge, supervision skills, personal development, leadership, research	Residential workshop, team assignments, reflection	Subjective MSF instrument	No significant improvement in pre–post MSF score or between intervention and control groups.
Conflict resolution, cultural competence, minority health, and family–professional collaboration	Workshop	Subjective Researcher-developed questionnaire	Program participants reported more frequent use of interdisciplinary practices compared with nonparticipants. Participants reported using the skills to improve a specific program, organization structure/functioning, partnership, and influenced policy.
Not specified	Lectures, one-to-one coaching, action learning sets, 360° feedback, and workshops	Subjective and objective LPI	Both the participants and observer assessments showed a significant postprogram improvement in two of the five subscales: "inspiring a shared vision" and "challenging the process," which was sustained over 6 months of follow-up.

(continues)

Table 1
Study Characteristics, Leadership Intervention, and Behavioral Outcomes, Continued

No.	Author (Year) / Country	Objective	Study Setting and Participant	Study Design	Intervention Duration
27.	McAlearney et al. (2005) United States	To describe the background, development, and evaluation of a leadership program.	52 physicians (two cohorts) from an academic hospital	Quantitative, pre–post, and 1-year follow-up	20 months (hourly sessions monthly and half-day sessions twice yearly).
28.	Singer et al. (2011)/ United States	To describe a safety-oriented leadership training program for hospital managers and to assess behavior change.	108 (100, 61 female, analyzed). 12 multidisciplinary management groups comprising physicians, nurses, clinicians, and administrators	Qualitative, postprogram per session	15 months, four full-day sessions with one 2-hour follow-up.
29.	Steinert et al. (2003)/ Canada	To describe a 2-day workshop on executive skills for medical faculty and the results of an evaluation conducted 1 year later.	20 (16 analyzed) medical faculty from the Department of Family Medicine	Quantitative, postprogram and 1 year of follow-up	2 days
30. 31.	Tourangeau et al. (2003), Tourangeau (2003)/ Canada	To determine effect of Nursing Leadership Institute leadership training on self- and observer-reported leadership behavior.	67 (66 female) nurses (30 established leaders and 37 aspiring leaders) from 28 healthcare organizations Mean age: 44 years 56 dyad partners, 227 peers, and 31 supervisors	Quantitative, pre–post	5-day residency program and a follow-up booster weekend at 3 months.

Intervention Content	Teaching Method	Behavioral Outcome and Assessment	Significant Finding
Teamwork, leadership, transformational change, collaborative decision making, strategic planning, conflict resolution	Interactive discussions, presentations, teamwork, seminars	Subjective Researcher-developed questionnaire	At 1-year follow-up, participants were more effective in their current leadership roles (mean = 4.2) and working in teams (mean = 4.0), were better able to lead teams (mean = 4.3), and experienced new and expanded leadership roles (mean = 4.0). Physicians improved leadership behavior in decision making, conflict resolution, business planning, and managing people.
Appreciative inquiry, team-based leadership, communication, project management	Simulation exercise, group work, project management exercise, interviews	Subjective Analysis of transcripts from group sessions	The training increased awareness and use of leadership behaviors among managers leading to new routines and coordinated effort. Improvements included caring for patients, encouraging their staff to speak up, facilitating teamwork and communication, mobilizing resources, and seeking input. Participants rated (on a scale of 0–10) an average training impact of 8.4 at postprogram and 6.9 at 15 months of follow-up across targeted behaviors.
Time management, determining goals and priorities, leadership styles, conducting effective meetings	Workshop	Subjective Researcher-developed questionnaire	At 1 year, many participants determined their priorities more clearly, altered their time management strategies, and planned more effective meetings. Less change was noted in leadership styles and skills.
Nursing practice, business of healthcare, leadership practices, and use of self	Didactic sessions, self-reflection, small group discussion and problem-solving, coaching, and networking opportunities	Subjective and objective LPI	No significant increase in self-scores of leadership practices postprogram. Established leaders reported using more leadership behaviors than aspiring leaders in three leadership areas (challenging the process, inspiring a shared vision, and encouraging the heart). Peers reported significant increases for all five leadership practices. Supervisors and dyad partners reported significant increases for challenging the process and inspiring a shared vision.

(continues)

Table 1
Study Characteristics, Leadership Intervention, and Behavioral Outcomes, Continued

No.	Author (Year) / Country	Objective	Study Setting and Participant	Study Design	Intervention Duration
32.	Werrett et al. (2002)/ United Kingdom	To evaluate the first phase of the Leading an Empowered Organization leadership program.	550 (502 female) nurses and midwives 181 participants completed the posttest.	Quantitative, before and 3 months after program	Not specified
33.	Weston et al. (2008)/ United States	To evaluate the impact of Arizona Nurse Leadership Model on leadership knowledge and skills in novice first-line nurse supervisors.	Entry-level nursing and healthcare supervisors and managers and their immediate supervisors Sample size not reported	Quantitative, before and 2 months after program	4-day educational program spread over 2 months.

period. Nine studies (Study nos. 1, 2, 7, 17, 19, 24, 30, 32, 33) used two assessments during the preintervention and postintervention periods, and seven studies collected follow-up data (Study nos. 4, 12, 18, 21, 23, 26, 27). Dannels et al. (2008) used baseline assessments and a 4- to 5-year follow-up period. The remaining six studies (Study nos. 6, 15, 16, 20, 25, 29) used measurements during the postintervention and follow-up periods. Follow-up periods ranged from 6 weeks (Leeson & Millar, 2013) to 8 years (Margolis et al., 2013).

Effectiveness of the Interventions

Key findings related to the effects of the interventions on subjective and objective leadership behaviors are summarized in Table 2.

Subjective behavior

Subjective behavior outcomes included participants' self-reported change in behavior as a result of the leadership intervention. Of the nine studies that used standard scales to measure these outcomes, six reported a significant postprogram improvement. Among the four studies that used the LPI, three showed significant improvements on different subscales of the LPI. Significant improvements in "inspiring a shared vision" (Krugman & Smith, 2003; Lee et al., 2010; Martin et al., 2012), "challenging the process" (Krugman & Smith, 2003; Martin et al., 2012), and "modeling the way" (Krugman & Smith, 2003) were observed. In the case of Tourangeau (2003), the increase in LPI scores was not significant.

Cunningham and Kitson (2000b), using the Multifactor Leadership Questionnaire, reported significant changes in the dimensions of inspiration, active management by exception, effectiveness, and satisfaction among the nurses participating in the Clinical Nurse Leadership program. Werrett et al. (2002) found significant pre–post improvements in the Importance–Performance Scale, particularly in aspects of team and management issues, staff development, and assertiveness. Boyle and Kochinda (2004) found a significant increase in postintervention scores (56.7 in pretest to 75.3 in posttest, $p = .021$) on the Collaborative Communication Simulation Vignette (maximum score = 100). Moreover, the follow-up results showed significant improvements in self-perceived leadership and leadership and communication skills satisfaction (measured using an ICU Nurse–Physician Questionnaire) among participants. Fennimore and Wolf (2011), using a modified Nurse Manager Inventory Tool, reported an average improvement of 0.68 in scores across 15 different competency areas among nurses who participated in the Leadership Development for Nursing Middle Managers program. Competency showed major improvements, particularly in the areas of "the science of managing people," "the art of leading people," and "creating the leader within." In Malling et al. (2009), the improvement in pre–post Multisource Feedback (MSF) was not significant for the intervention group (who received both the leadership intervention

Intervention Content	Teaching Method	Behavioral Outcome and Assessment	Significant Finding
Content not specified	Not specified	Subjective Importance–Performance Scale	Significant improvement for performance in aspects of practice related to team issues, management issues, staff support and development, and creative management and assertiveness. Self-development improved but was not significant. Participants highlighted team building and personal development outcomes.
Leadership, performance measures, team building, negotiations and conflict management, communications, time management	Group assignment, case study, presentation	Subjective and objective Researcher-developed questionnaire	Both participants and supervisors rated increased competence in all areas with largest improvements in negotiating, managing conflict, and dealing with difficult people. Participants identified applying conflict management, time management, and communication skills in their workplace.

and MSF) and between the intervention and control groups, the latter of which received MSF only.

Maddalena and Fleet (2015) found that more than 95% of the participants were better prepared for leadership responsibilities, with participants reporting planned changes in the workplace because of program participation. Weston et al. (2008) reported that participants applied learned skills such as conflict, time management and communication skills. Chief residents who participated in a 2-day leadership intervention reported better leadership and conflict resolution skills, more collaboration between disciplines (Levine et al., 2008) as well as the belief that the training would affect their future work as physicians. Physicians who participated in a 20-month leadership program reported increased effectiveness in their leadership role (mean = 4.2 on a 5-point scale), teamwork abilities (mean = 4.0), ability to lead teams (mean = 4.3), and experience of new and expanded leadership roles (mean = 4.0; McAlearney et al., 2005).

Three of the four studies with control groups showed increased leadership competencies and changed behavior among the intervention groups compared with controls. Dannels et al. (2008) found significant improvements on 12 of the 16 leadership indicators for participants in the intervention group. Follow-up results also showed a significantly higher number of participants reporting attainment of a higher administrative position. Bergman et al. (2009) compared long-term support groups with a 1-week leadership intervention for healthcare managers and found that both interventions strengthened leadership roles. The 1-week course was better for inexperienced managers, whereas the long-term group benefited experienced managers. Interdisciplinary Leadership Development Program participants improved their interdisciplinary practices more than nonparticipants (Margolis et al., 2013). Malling et al. (2009) did not find significant differences in pre–post MSF between intervention and control groups.

Castillo and James (2013) found that 70% of the training participants reported improved leadership behavior because of training, including being a role model, encouraging problem solving, and critical thinking. Moreover, Debono et al. (2016) found that 70% of participants reported improvements in job performance after the leadership program. In Gagliano et al. (2010), 79% of the physicians participating in the Leadership Development Program reported a change in their approach to specific projects and greater positivity in addressing problems. In addition, more than 65% of the nurses who participated in a web-based leadership course reported improved confidence in applying skills such as change management, conflict resolution, and ethical decision making (Brown et al., 2003).

Other qualitative studies also had similar results, with participants reporting changed leadership behavior and performance because of the intervention (Boomer & McCormack, 2010; Ford et al., 2008; Gifford et al., 2011; Macphee et al., 2012). Participants reported consciously seeking positive

Table 2
Subjective and Objective Behavior Findings for Intervention Effectiveness

Scale	Key Finding
Subjective Behavior	
Leadership Practices Inventory	Significant improvements in "inspiring a shared vision" (Krugman & Smith, 2003; Lee et al., 2010; Martin et al., 2012), "challenging the process" (Krugman & Smith, 2003; Martin et al., 2012), and "modeling the way" (Krugman & Smith, 2003). Tourangeau et al. (2003) showed no significant improvements.
Multifactor Leadership Questionnaire	Significant improvements in dimensions of inspiration, active management by exception, effectiveness, and satisfaction (Cunningham & Kitson, 2000b).
Importance–Performance Scale	Significant improvements—especially in team and management issues, staff development, and assertiveness (Werrett et al., 2002).
Collaborative Communication Simulation Vignette	Significantly higher postintervention scores (Boyle & Kochinda, 2004).
ICU Nurse–Physician Questionnaire	Significant improvement at follow-up in self-perceived leadership as well as leadership and communication skills satisfaction (Boyle & Kochinda, 2004).
Modified Nurse Manager Inventory Tool	Significant improvements, particularly in the dimensions "the science of managing people," "the art of leading people," and "creating the leader within" (Fennimore & Wolf, 2011).
Multisource Feedback	No significant improvement in the intervention group and no difference compared with the control group (Malling et al., 2009).
Other assessments	Better prepared for leadership responsibilities and workplace reform (Maddalena & Fleet, 2015).
	Applying conflict and time management as well as communication skills (Weston et al., 2008).
	Better leadership and conflict resolution skills; improved collaboration. Training would affect their future work (Levine et al., 2008).
	Increased leadership effectiveness, teamwork, and ability to lead and develop new and expanded leadership roles (McAleamey et al., 2005).
	Participants became more proactive, better at prioritizing and planning, and took responsibility for actions (Leeson & Millar, 2013).
	Improved leadership behavior, including being a role model, encouraging problem solving, and critical thinking (Castillo & James, 2013).
	Improvements in job performance (Debono et al., 2016).
	Modified approach to projects and addressing problems positively (Gagliano et al., 2010).
	Reevaluation of leadership skills and confidence in applying skills such as change management, conflict resolution, and ethical decision making (Brown et al., 2003).
	Improved action-focused, democratic, and participative approaches (Graham & Jack, 2008).
	At 1-year follow-up, participants were less satisfied with the changes they could make in leadership style and skills (Steinert et al., 2003).
Objective Behavior	
Leadership Practices Inventory completed by observers	Observers reported significant subscale improvements in "inspiring a shared vision" and "challenging the process" (Martin et al., 2012).
	Supervisors and dyad partners both reported significant improvements in "challenging the process" and "inspiring a shared vision," and peers reported significant improvements across all five subscales (Tourangeau et al., 2003).
	Observers reported significant decreases in the subscales "modeling the way," "enabling others to act," and "encouraging the heart" (Krugman & Smith, 2003).
Multifactor Leadership Questionnaire completed by observers	Observers reported significant improvements in the charisma, inspiration, idealized contribution, extra effort, and effectiveness dimensions (Cunningham & Kitson, 2000a, 2000b).
Modified ICU Nurse–Physician Questionnaire completed by unit staff	Significant improvements in collaborative communication, problem solving, and leadership (Boyle & Kochinda, 2004).

(continues)

Table 2
Subjective and Objective Behavior Findings for Intervention Effectiveness, Continued

Scale	Key Finding
Other assessments	Positive impact on leadership skills and improvement in job performance (Debono et al., 2016).
	Improvements in leadership behaviors of conflict management (Maddalena & Fleet, 2015; Weston et al., 2008), problem solving (Maddalena & Fleet, 2015), dealing with difficult people (Weston et al., 2008), and better teamwork and communication (Boomer & McCormack, 2010).
	Significantly improved performance in a mock leadership scenario at 6 months of follow-up compared with baseline and control groups (Gilfoyle et al., 2007).

behavioral change such as having a positive attitude, encouraging others to speak up, facilitating communication, and seeking input from colleagues (Singer et al., 2011). Other behavioral changes reported included becoming more reflexive (Boomer & McCormack, 2010; Fennimore & Wolf, 2011), facilitating teamwork (Study nos. 3, 6, 20, 23, 28, 32), effective conflict resolution (Brown et al., 2003; Levine et al., 2008; Maddalena & Fleet, 2015; Weston et al., 2008), and time management (Steinert et al., 2003; Weston et al., 2008).

Graham and Jack (2008) found no significant pre–post change in the quantitative results related to leadership behavior among leadership program participants. However, participants in qualitative interviews described being better able to be action focused, democratic, and participative. Steinert et al. (2003), at 1-year follow-up, found the participants in their study less satisfied with the changes they could make in leadership style and skills.

Interventions that incorporated the elements of personal development planning, self-directed learning, and reflection achieved relatively better results. Developing a leadership action plan and a practice-based action learning project (Study nos. 3, 6, 7, 13, 15, 17, 21, 26) was particularly effective in supporting the participants to operationalize leadership strategies and become more engaged with unit staff.

Objective behavior

Nine of the included studies reported objective behavior outcomes, including behavioral change exhibited by the participants as observed and rated by supervisors, colleagues, peers, and/or staff from the working unit of the participants (Table 2). Gilfoyle et al. (2007) used a mock leadership scenario to assess the effect of a leadership intervention, and hence it was considered an objective outcome in this review.

Three studies administered the LPI to the observers of the training participants. Martin et al. (2012) found that observers reported significant improvements in the "inspiring a shared vision" and "challenging the process" subscales of the LPI. Tourangeau et al. (2003) distinguished the observers into supervisors, dyad partners, and peers, with supervisors and dyad partners both reporting significant improvements in "challenging the process" and "inspiring a shared vision" and peers reporting significant improvements in all of the five subscales of the LPI. Conversely, in Krugman and Smith (2003), observers reported a significant decrease in the "modeling the way," "enabling others to act," and "encouraging the heart" subscales of the LPI. Observers, including colleagues of the participants, reported significant improvements in the dimensions of charisma, inspiration, idealized contribution, extra effort, and effectiveness on the Multifactor Leadership Questionnaire (Cunningham & Kitson, 2000a, 2000b). The unit staff in Boyle and Kochinda (2004) reported significant improvements in collaborative communication, problem solving, and nursing leadership, as measured using a modified ICU Nurse–Physician Questionnaire at 6 months of follow-up.

The supervisors of nurses participating in the leadership program reported a positive impact on the leadership skills (79%) and job performance (83%) of the nurses who participated in the program (Debono et al., 2016). In other studies, the observers rated postintervention improvements in leadership behaviors such as conflict management (Maddalena & Fleet, 2015; Weston et al., 2008), problem solving (Maddalena & Fleet, 2015), dealing with difficult people (Weston et al., 2008), and better teamwork and communication (Boomer & McCormack, 2010). Gilfoyle et al. (2007) found significantly improved performance during a 6-month follow-up of the mock leadership scenario among trainees who participated in a half-day workshop compared with both baseline and the control group.

Discussion

The primary aim of this study was to review the behavioral outcomes of leadership interventions that were conducted on health professionals. This review shows the beneficial effects on the leadership behavior of participants across a range of leadership interventions. Specific behavioral improvements as perceived by participants as well as observers were observed postprogram for most courses. The participants were found to implement more efficient processes and to engage more frequently with staff (Debono et al., 2016). Six of the nine studies that used standard leadership behavior scales (Study nos. 4, 7, 18, 19, 26, 32) showed significant postprogram

improvement. Castillo and James (2013) identified change in organizational culture, with constructive use of feedback and improved communication. Both participants and observers reported the effective use of learned skills such as conflict resolution, communication, time management, teamwork, problem solving, critical thinking, and being reflective.

This review identified that the methods and processes used to implement leadership interventions are important in improving leadership behavior among participants. In this review, programs that targeted personal development, self-direction, and reflection were more likely to produce behavioral outcomes. Moreover, activities that were designed to assist participants to operationalize leadership strategies were particularly effective. Leadership action plans and practice-based action projects assisted participants to implement practical leadership strategies and promote staff engagement. Moreover, these action plans provided a tangible framework for showing leadership behavior and tracking the progress of leadership development (Gifford et al., 2011).

Among the included studies that used observer (e.g., supervisor, peer, or unit staff) ratings, most found that observers rated the participants' leadership behavior higher than participant self-ratings (Martin et al., 2012; Tourangeau, 2003; Tourangeau et al., 2003; Weston et al., 2008). Thus, objective observations are more likely to show the benefits of the leadership interventions. In general, objective behavior, as reported by the observers, improved from preintervention to postintervention. Unit staff perceived changes in participant behavior as the participants became more approachable, encouraging, and supporting (Maddalena & Fleet, 2015).

There is evidence across the studies showing improved leadership development where interventions use face-to-face delivery and showing that participants valued the opportunities provided by this mode of delivery. Participants from the included studies that used online course also preferred face-to-face delivery and reported that the absence of nonverbal cues and body language impeded their learning progress (Brown et al., 2003). Furthermore, participants in the included studies that used face-to-face courses valued the networking opportunities (Debono et al., 2016; Levine et al., 2008) and feedback from peers (Gagliano et al., 2010). Participants perceived these events as an opportunity to collaborate with other like-minded professionals (Lee et al., 2010).

This review identified the difficulties of and barriers to translating learned knowledge and skills into action. Steinert et al. (2003) argued that one of the reasons for failing to implement behavioral changes was the absence of dedicated workshop time during the sessions to apply their newly learned skills. In addition, leadership behavioral change may require time and experience. Other training areas such as resilience have shown context and experience as important to effective training outcomes (Cleary et al., 2018). Boomer and McCormack (2010) identified that lack of support from organization leaders adversely affected the articulation of learned skills into practice. Lee et al. (2010) further observed that, although leadership development programs often promote and encourage leadership practice, recurrent organizational barriers make participants reluctant to initiate and continue efforts to change. The increasing incongruities between workplace reality and leadership idealism promoted in training programs may result in a sense of isolation, skepticism, and frustration among program participants (Spiers et al., 2010). Furthermore, participants who are involved in a leadership development intervention may hold the preconception that senior executives are not in favor of change and that organizational culture inhibits change (Lee et al., 2010). Iles and Preece (2006) posited that "leadership development" differs from "the development of leaders." Interventions aiming to develop leadership, in addition to focusing on individual skill development, should consider the social, cultural, and political contexts of the organization in which behavioral change is expected. Leadership should not be considered as an individual activity but rather as a collective cultural activity with collective identity, interdependence, and collaborative accountability.

Program Implications

Efforts to improve leadership behavior among health professionals should involve the active collaboration and support of senior executives. As leadership is a team process, the entire organization should facilitate sustainable change in leadership. Face-to-face courses are recommended, as they support collegial feedback and provide networking opportunities to positively impact learning, behavioral change, and professional development. Training should incorporate elements of work-based and experiential learning. Interventions in which participants determine behavioral change needs, develop action plans, and have opportunities to apply these in real scenarios are more likely to succeed. Assessments performed with participants before training help identify the appropriate content and focuses for training interventions (Collins & Holton, 2004). Changing leadership behavior is a long-term process that requires continuous and sustained interventions and long-term follow-up.

Research Implications

Few studies have assessed the leadership behavior of health professionals using a robust evaluation design. Studies evaluating leadership interventions with a focus on leadership behavior should use specific leadership behavioral outcome measures, a strong evaluation design, and multiple outcome assessments. Studies should consider confounders that may have significantly affect leadership behavior. In evaluating leadership interventions, Saleh et al. (2004) recommended considering factors such as the support of senior executives, organizational culture (openness to change), organizational resources, and the opportunity to apply learning. Randomized control designs with wait-list controls and studies with an adequate sample size and follow-up periods are required to identify the long-term effects of the interventions.

Limitations

The considerable heterogeneity among the studies precluded a quantitative synthesis of the results. In addition, this review found that most interventions focus on individuals and thus ignore teamwork and collaboration. Most of the included studies on the behavioral impact of leadership interventions adopted a narrow set of outcome measures that primarily addressed self-reported behavioral change. Furthermore, as only a few of the included studies used control groups and none used a randomized control trial design, it is possible that other, unaccounted-for factors may have contributed to the outcomes. This review may also experience publication bias, as negative and nonsignificant findings may not have been published. The use of small sample sizes and self-selected convenience sampling in most of the included studies is another limitation that may affect the outcomes of this review. Finally, in many of the included studies, the researchers were also responsible for implementing the change in training programs and/or developing the training resources.

Conclusions

The culture of healthcare is defined by constant development, where effective leadership is central to addressing and managing change. Leadership development programs produce positive results, including implementation of efficient processes, staff engagement, and improved satisfaction for patients and staffs. This review identified many supporting factors for successful leadership development programs. Interventions that are designed to promote leadership development require preplanning, leadership needs assessments, considerations of organizational context, strong focuses on self-awareness and collaboration, experiential work-based learning to apply skills within the desired context, and proper evaluation and incentivization. The successful development of leadership in healthcare professionals promotes evidence-based best practice, positive organizational culture, and improved patient outcomes and keeps healthcare responsive to its ever-changing environment.

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